



Planning for a New Mobility Future

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Eugene • Gresham

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COLLEGE OF DESIGN

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This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for the cities of Eugene and Gresham. Text and images contained in this report may not be used without permission from the University of Oregon.

Contents

4	About SCI
4	About SCYP
5	About Gresham, Oregon
5	About Eugene, Oregon
6	Course Participants
7	Executive Summary
9	Introduction
10	Findings
24	Recommendations
33	Conclusion
34	References
37	Appendices

About SCI

The Sustainable Cities Institute (SCI) is an applied think tank focusing on sustainability and cities through applied research, teaching, and community partnerships. We work across disciplines that match the complexity of cities to address sustainability challenges, from regional planning to building design and from enhancing engagement of diverse communities to understanding the impacts on municipal budgets from disruptive technologies and many issues in between.

SCI focuses on sustainability-based research and teaching opportunities through two primary efforts:

1. Our Sustainable City Year Program (SCYP), a massively scaled university-community partnership program that matches the resources of the University with one Oregon community each year to help advance that community's sustainability goals; and

2. Our Urbanism Next Center, which focuses on how autonomous vehicles, e-commerce, and the sharing economy will impact the form and function of cities.

In all cases, we share our expertise and experiences with scholars, policymakers, community leaders, and project partners. We further extend our impact via an annual Expert-in-Residence Program, SCI-China visiting scholars program, study abroad course on redesigning cities for people on bicycle, and through our co-leadership of the Educational Partnerships for Innovation in Communities Network (EPIC-N), which is transferring SCYP to universities and communities across the globe. Our work connects student passion, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-

learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations resulting in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

About Eugene, Oregon

The city of Eugene is a central hub of commercial, educational, and recreational activity in the southern Willamette Valley. Incorporated in 1862 as “Eugene City,” residents sought to turn Eugene into a center of learning. To that end, they raised the initial funding to start the University of Oregon, now the city’s flagship university and public research facility.

With a population of just over 160,000 people, Eugene is Oregon’s second largest city and the county seat of Lane County. Located in the heart of the county along the Willamette and McKenzie Rivers, Eugene is recognized for its green landscape, recreational opportunities, and sustainability efforts. The city’s slogan, “A Great City for

the Arts and Outdoors,” reflects its commitment to the arts and culture as well as nature preservation efforts. Eugene is also popular for many nearby recreational opportunities, including Willamette Pass Ski Area, Fern Ridge Reservoir, and hiking and rafting along the McKenzie River.

About Gresham, Oregon

With over 110,000 people, Gresham is the fourth largest city in Oregon. It is bordered to the west by Portland, the largest city in the state. Gresham is ideal for families and businesses wanting to start something new and grow.

Gresham is in close proximity to the Columbia Gorge National Scenic Area and Mount Hood, the highest point in Oregon. It has a wide variety of neighborhoods including: the Civic Center, known for its active transportation network, rapid

transit connections, and residential, commercial, and retail mix; Historic Downtown which offers a walkable blend of shops, restaurants, and service businesses; and Rockwood, one of the youngest and most diverse neighborhoods in Oregon.

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Executive Summary

The purpose of this report is to gather data about the existing transportation infrastructure in Eugene and Gresham, and analyze this information to make recommendations regarding planning for new mobility services.

With advances in technology, new forms of mobility are emerging and entering our cities. These new modes are driving the need for plans and policies that direct how they will operate in cities, where they can operate and park, and who can use them. The cities of Eugene and Gresham would like to prepare for these new modes of mobility.

Transportation Planning students were tasked with gathering data on current parking and micro-mobility usage and infrastructure, analyzing these data, and issuing recommendations to address new mobility. Students also researched how other U.S. cities are addressing issues such as high parking occupancy, bicycle infrastructure, the emergence of transportation network companies (TNCs) like Lyft and Uber (also known as ride-hailing services), and new forms of micro-mobility such as e-scooters. Taking into consideration research from other U.S. cities and the goals of Eugene and Gresham, students recommended the following policy approaches.

For parking policies in the city of Gresham, we recommend a short-term expansion of transit-selective parking requirements and creating designated loading and unloading zones for ride-hailing services. When parking demand reaches a certain level (i.e. 85% during peak hours), the City could consider timed or paid parking. For the long-

term, Gresham could implement a land use tax encouraging owners of underutilized downtown properties such as vacant lots and parking areas to develop or sell them. To increase pedestrian activity and meet the City's goal of creating a place visitors and community members can enjoy, Gresham could create a pedestrian mall downtown. The City can also look at limiting parking to designated areas, specifically near cities' outer edges, to prevent future congestion.

For parking in Eugene, we also recommended designated loading and unloading zones for ride-hailing services. To create a more equal distribution of parking throughout downtown long-term, prices can be increased in the downtown core and decreased in peripheral areas to equalize distribution.

The first step for Eugene and Gresham regarding micro-mobility is to plan for micro-mobility parking either by reutilizing current parking spaces or using sidewalk space. Current bicycle lanes can be rebranded as micro-mobility lanes, allowing for more transportation modes to travel in these spaces.

Eugene and Gresham are at different stages regarding micro-mobility integration. However, both need to decide if they want to implement fleet caps on e-scooter companies, determine where people can ride e-scooters, and incentivize proper parking of this mode. One solution is

implementing a reward and fee system for micro-mobility parking. Both cities can also launch a micro-mobility pilot program to see how e-scooters operate in their respective cities and use this to develop further plans. Portland piloted an e-scooter share in 2018, and Eugene and Gresham can use this pilot as an example.

We encourage both Eugene and Gresham to have an equity lens as

they create new mobility policy. With e-scooters, we recommend requiring companies to place e-scooter stations in low-income and underserved neighborhoods. With developing technology, it is important that low-income and marginalized communities are not left behind. Cities need to make sure new forms of mobility are accessible to all people.

Introduction

With advances in technology, new mobility forms are emerging, such as ride-hailing services, autonomous vehicles, and electric scooters. Mobility means access: transportation allows people the ability to experience different opportunities and opens doors for where they can live, work, go to school, and shop. It is important that cities plan for these new forms of mobility to ensure they function within our urban fabric and are accessible to all people.

In order to prepare for these new mobility forms, the cities of Eugene and Gresham are working in partnership with the Sustainable City Year Program and students of the Transportation Planning class to address these changes. Students gathered data about Eugene and Gresham's current parking supply and bicycle infrastructure in their respective downtown areas, since

these spaces are the urban centers of the cities. Students then evaluated this infrastructure and researched ways other cities in the United States are addressing new mobility modes. Taking all of this into consideration, students provided recommendations to city staff members about how they might prepare for this new mobility future.

Findings

Student groups received data from the cities of Eugene and Gresham about previously completed research regarding parking occupancy and bicycle counts. After looking at these data, each group gathered data in different areas in their respective cities and analyzed them, presented in the section below.

PARKING IN GRESHAM

Existing Parking Supply

Currently in downtown Gresham, there are 11 parking lots surrounded by streets that provide on-street parking. There

are currently 475 parking spaces within Gresham’s parking lots highlighted dark blue in [Figure 1](#). Currently, Gresham does not charge for parking.

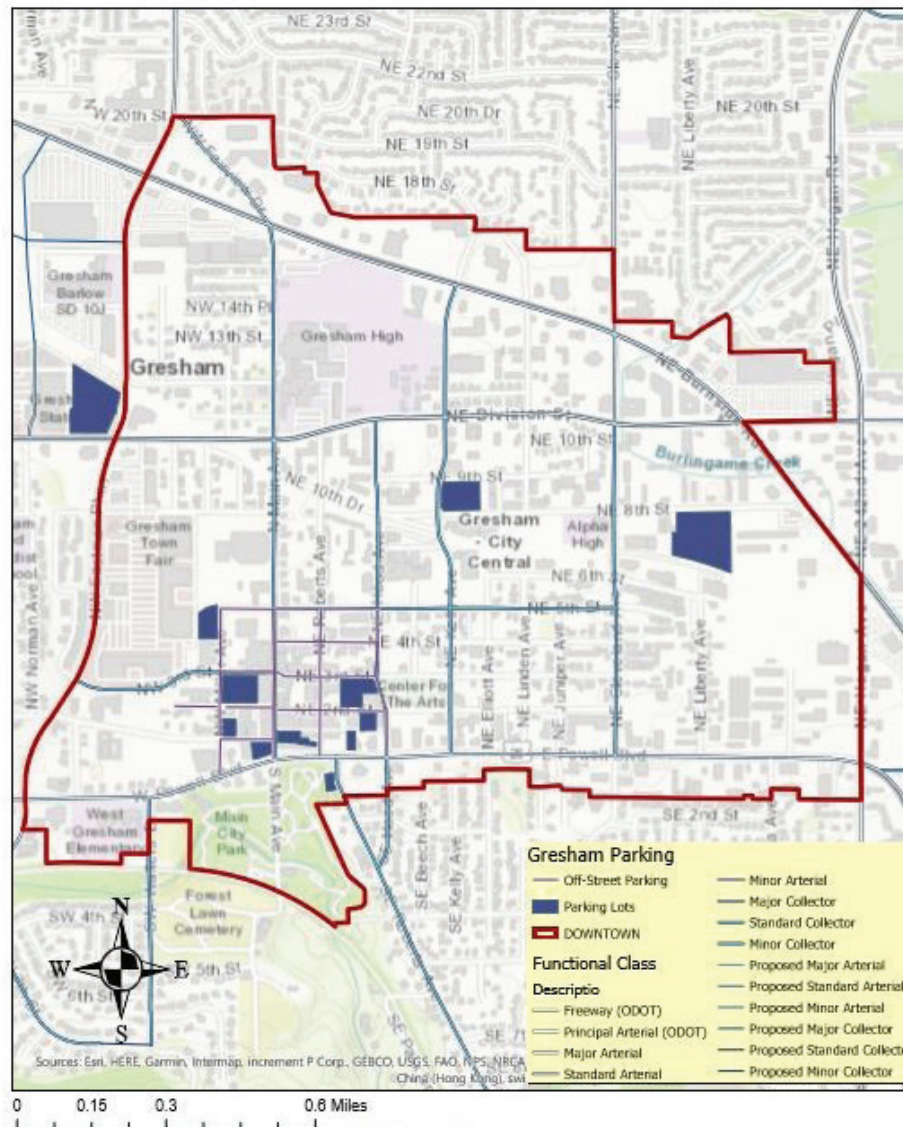


FIG. 1
City of Gresham
Existing Parking Supply
Map of lots

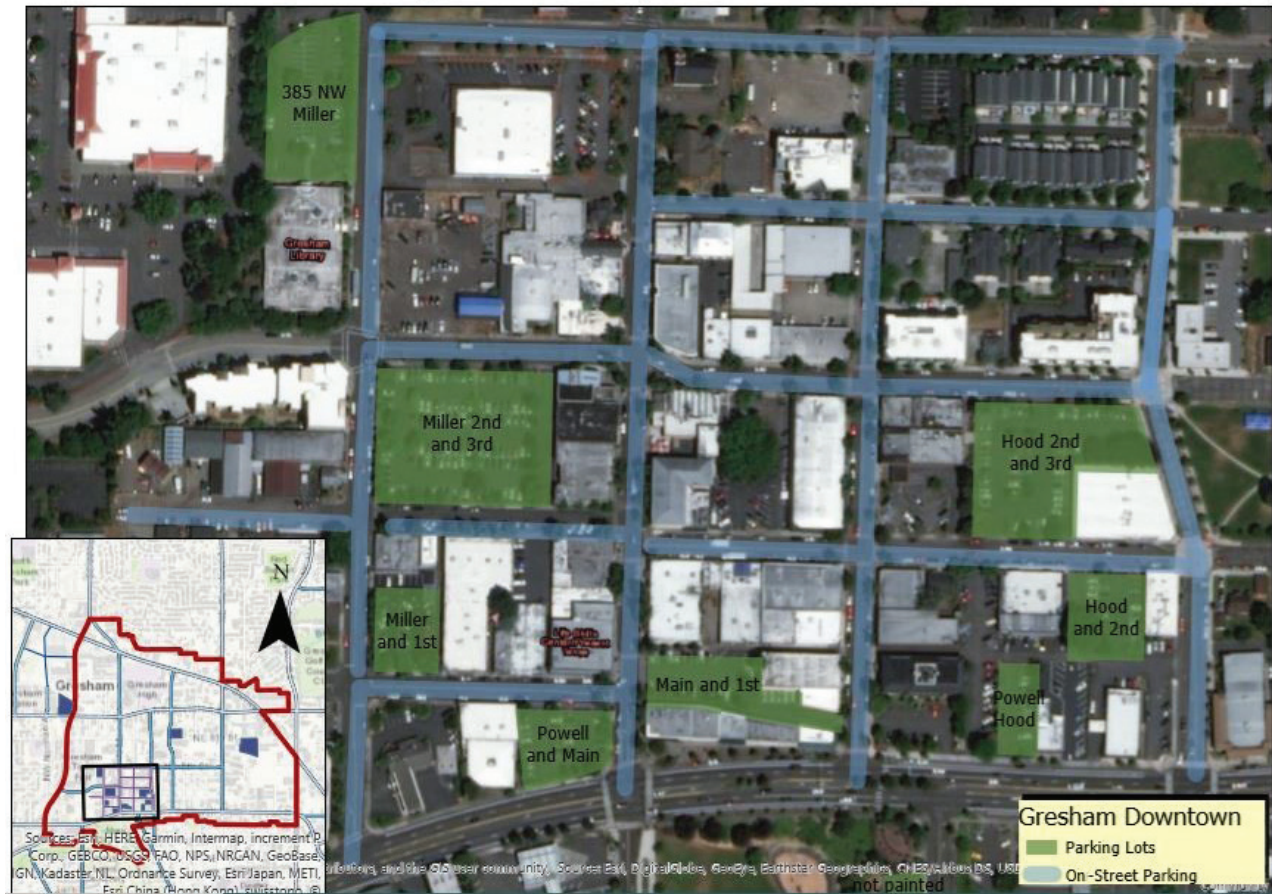


FIG. 2
City of Gresham parking lot occupancy areas

Parking Lot Occupancy Data

In Figure 2, parking lots highlighted in green indicate where data were collected. Existing data were collected annually during the summer at three peak hour periods (7-9 A.M., 11 A.M.–1 P.M., and 4–6 P.M.). The methodology included counting each lot and street sections in 15-minute increments to capture turnover rates. Between 2011 and 2014, none of the observed lots

had an average occupancy over 85%. During peak hours in 2015 and 2016, the parking lot at Miller Avenue and 1st Street had an average occupancy rate of 96% and the lot at Hood Avenue and 2nd Street had an average occupancy rate of 86%. Apart from the 2015–2016 peak hour time, all parking lots had average occupancy rates less than 85%. This is according to city of Gresham data.

On Street Parking Observations

Street parking occupancy data were collected for streets between NW Miller Avenue, NW 5th Street, NE Hood Avenue, and Powell Boulevard. Appendix A shows a map of the area and occupancy rate data.

Figure 3 shows the average occupancy percentage averaging between 50% and 70% from 2011 and 2017; however, different areas throughout downtown have different occupancy rates (see Appendix A for occupancy rate data). In 2011 and 2013 none of the observed streets had over 85% occupancy. Main Street between 2nd and 3rd Streets reached over 85% occupancy in 2012 and Main Street between 2nd and 4th Streets reached over 85% occupancy 2014 through 2016.

Students focused their data collection on the on-street parking on Main Street between 2nd and 4th Streets, and the lot between 2nd Street, 3rd Street, and Miller Avenue. This area

was chosen both for its high traffic and ease of observation, and previous years’ survey data yielded better longitudinal comparisons. Over the course of our observation period only 31% of the vehicles were parked for the entire four hours. Of the cars we observed arriving, 28% of them left within 30 minutes, and nearly 62% of them left within an hour. This should help dispel some of the belief among the public that vehicles are “camping out” for long periods of time; the turnover is quite dramatic.

The combined 139 spaces observed had an average occupancy of 89.4% across the observation period, with a peak of 92% at 1:00 pm. Eight total handicap placards were observed, only one of which was not in a designated space. A designated handicap space was occupied by a non-Americans with Disabilities Act (ADA) placard twice. The average goes up to 93.1% occupancy if handicap and electric-only spaces are excluded.

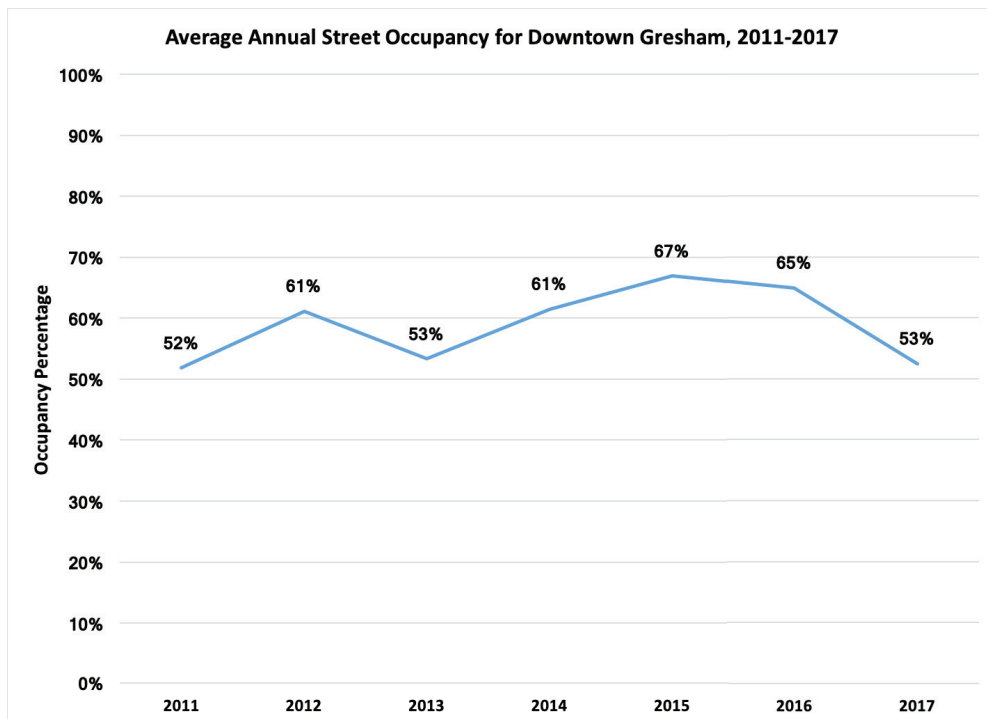


FIG. 3
City of Gresham
Average Annual
Street Occupancy for
Downtown Gresham
2011-17

PARKING IN EUGENE

Each member of the Eugene parking team collected data on one block within the downtown parking zone. They observed occupancy, turnover, ride-hail drop-offs, and commercial deliveries. The group chose observation locations with high levels of activity based upon meter location (see Appendix B for parking meter locations) and occupancy data provided by the city of Eugene.

Existing Parking Supply

Figure 4 shows the city of Eugene’s current supply of parking garages, surface lots, and metered spaces.

The areas circled in red indicate areas where students conducted their own observations and data collection.

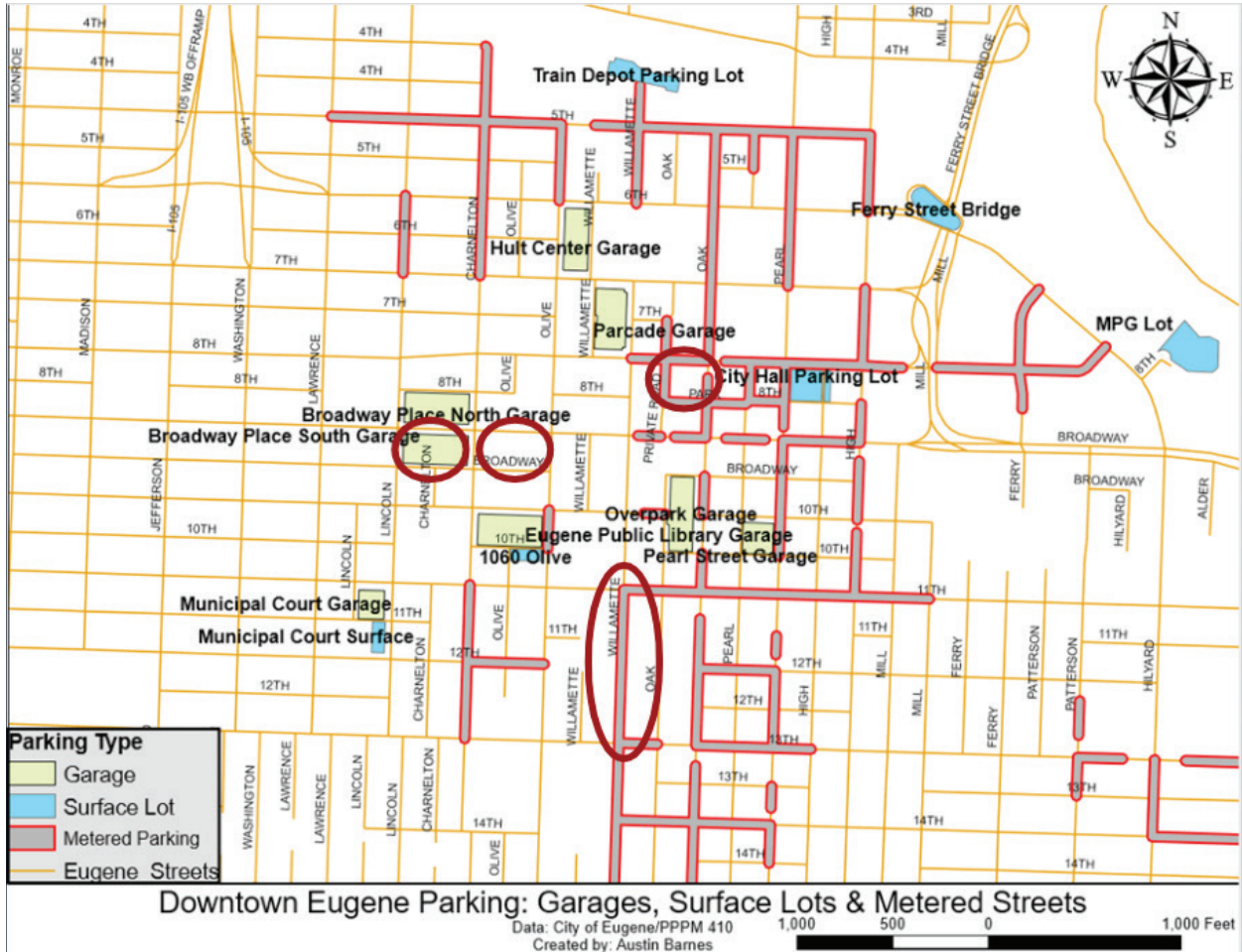


FIG. 4
City of Eugene
Downtown Parking
Supply: garages,
surface lots,
and metered streets

Metered Streets Occupancy Data

Occupancy data described hourly occupancy percentages for metered parking along multiple streets downtown. Students isolated occupancy periods along each street with an occupancy level of at

least 85% and calculated the overall percentage of time spent at or above this occupancy rate. [Figure 5](#) summarizes rates of high occupancy for seven streets in downtown Eugene and the days during which high occupancy levels occur.

Street	Overall Average % of 85%+ Occupancy
Broadway	46%
Charnelton	0%
Olive	29%
Willamette	38%
8th	0%
10th	33%
11th	0%

FIG. 5
Averages of 85% + Street Occupancy Levels

On Street Parking Observations

[Figure 6](#) describes significant counts across the selected study locations outlined in [Figure 4](#). Vehicle turnover in [Figure 6](#) describes how many vehicles came and went throughout the observation period. The city of Eugene asked students to record how many parked vehicles had ADA placards and how long those vehicles remained parked for. On Broadway between Willamette Street and Olive Street, as

well as on East 8th Avenue and Park Street, only one vehicle with an ADA placard was observed in each area. All other observation areas did not have vehicles with ADA placards.

Each observation area experienced a limited number of pick-ups or drop-offs from ride-hailing vehicles such as Lyft or Uber. Of these, most parked illegally or stopped in the middle of traffic. See Appendix C for more thorough outlines of key observations in each study.

Street	# of Parking Spaces	Vehicle Turnover	# of Pick-ups/ Drop-offs	# of Commercial Vehicles
Broadway (from Willamette to Olive)	14	37	6	4
Broadway (from Olive to Charnelton)	16	33	0	0
E 8th & E Park	20	17	2	2
Willamette (from 11th to 13th)	28	63	6	1

FIG. 6
Parking Demand Counts in Downtown Eugene

PARKING PROGRAMS IN OTHER U.S. CITIES

This section outlines parking programs in other U.S. cities to demonstrate how others are responding to new mobility services and changes in demand. This research guided recommendations presented later in this report.

Loading and Unloading Zones — Washington D.C.

Designated loading and unloading zones provide a potential solution to decreased parking demand from increased ride-hailing. Converting unused parking to loading zones takes advantage of ride-hailing services' ability to deliver more passengers per space in a given time frame than parking by preventing the latter from occurring (Lu 2018).

Cities are piloting programs identifying loading zones in downtown districts or during peak ride-hailing hours, but substantial data have yet to be collected. Washington D.C. currently does this: signs installed by the Director of the District Department of Transportation designate locations as loading and unloading zones as well as stating the hours that the sign is applicable (D.C. Municipal Regulations 2013).

Performance Pricing — San Francisco, California & New Haven, Connecticut

SFpark is a performance pricing program for the city of San Francisco. This program utilizes sensors that report the occupancy of each curb space on every block alongside parking meters that adjust cost according to the time of day (Pierce & Shoup 2013). *SFpark* has two goals: to make curb parking readily available, and to ensure that curb parking accommodates as many customers as possible for adjacent businesses. Gregory Pierce and Donald Shoup conclude in their study of *SFpark* that it has the potential to revolutionize parking and that other cities should look towards performance pricing as the future.

Another performance-based pricing option is currently being tested in New Haven, Connecticut. The City is comparable to Eugene in terms of its population and strong university presence. New Haven utilizes standard parking meters to charge for on-street parking and its Parkmobile program allows drivers the option to pay meter fees through their smartphone (City of New Haven 2019). These fees are subject to adjustment during a three-year pilot program; the new pricing system intends to divert parking demand from high demand areas toward less congested streets by raising and decreasing prices respectively (Appel 2018).

All Transit Pass — Massachusetts

In several places, like Massachusetts (Franklin Regional Transportation Authority 2018) and Southeast Pennsylvania (Southeastern Pennsylvania Transportation Authority 2019), a pass is available that grants the bearer monthly access to all the region's transit networks. Most places offer this only to seniors, but theoretically, this card could be offered to anyone. This kind of streamlining helps reduce the inconvenience of purchasing transit fares, especially if the traveler utilizes multiple modes frequently.

Reclaiming the Streets — Burlington, Vermont

Burlington, Vermont's major thoroughfare, Church Street, is completely closed to automobile traffic for four blocks, allowing cyclists, pedestrians, scooters, street

performers, and community members to enjoy the brick-lined street. It is in a mixed-use zone, so the top floors of most of the businesses are apartments, reducing the vehicle miles traveled for employees and shoppers. Parking is free in three city-owned parking garages for the first two hours, with

the price increasing incrementally up to eight dollars for more than six hours. Similar car-excluded street sections or outdoor malls exist in other cities like Minneapolis, Minnesota and Providence, Rhode Island (“Parking and Transportation” 2019).

MICRO-MOBILITY IN GRESHAM

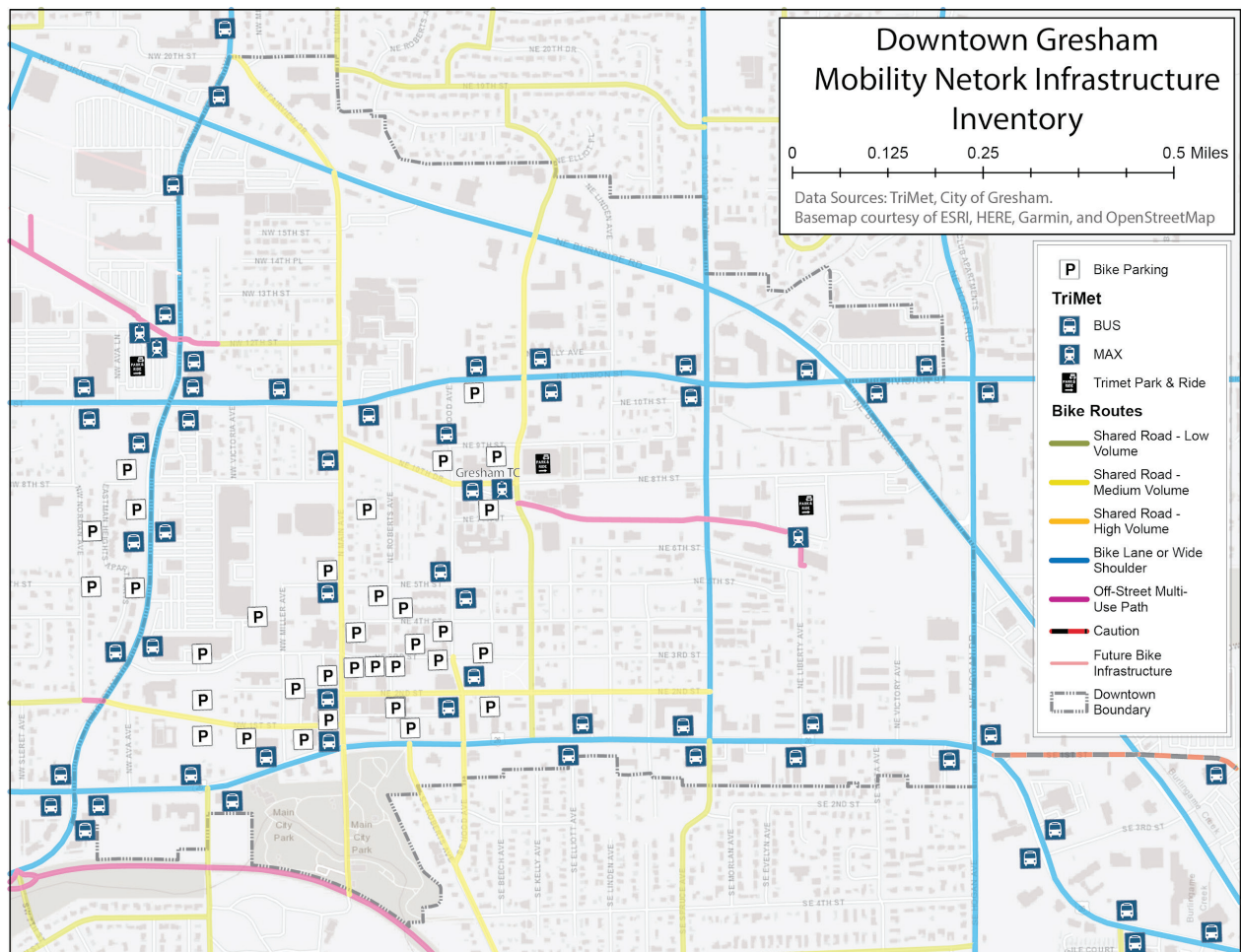
This section describes existing bicycle infrastructure in Gresham and discusses existing and student-collected bicycle count data.

Existing Bicycle Infrastructure

Figure 7 identifies current mobility infrastructure in downtown Gresham,

including bus stops, MAX lines, park and ride locations, bicycle parking, and bicycle routes.

FIG. 7
City of Gresham
Mobility Network
Infrastructure

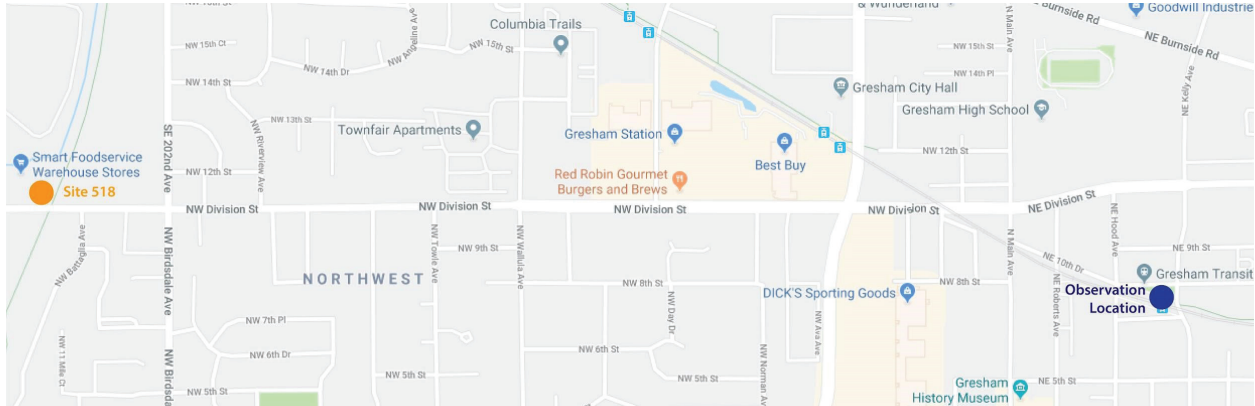


Existing Bicycle Count Data

The city of Gresham provided bicycle count data from 2011 to 2018 across 21 trips and 42 hours at Site 518 (see [Figure 8](#)), a bike trail near the observation location on Division Street. Data were collected in the mornings between

9:00 and 11:00 a.m. or in the afternoon between 3:00 and 5:00 p.m. Weather was recorded in the data, but just as a simple datum of ‘sunny’ or ‘cloudy.’ Data were parsed to try to understand trends in bicycle travel near our area of study (see Appendix D graphs).

FIG. 8
City of Gresham Bicycle Count Site 518 Map



Bicycle Observations

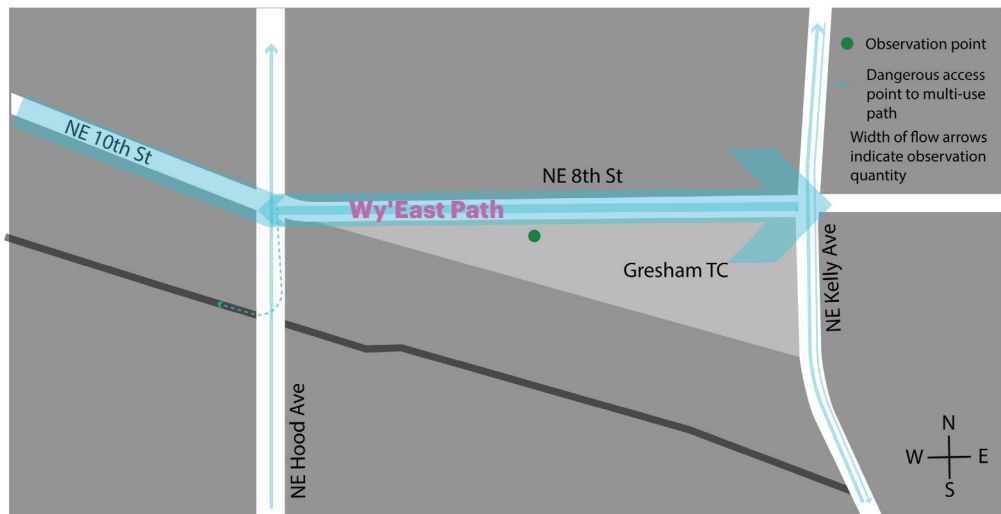
On a Friday afternoon from 1:00–5:00 p.m., students recorded bicycle counts at the Gresham Transit Center. This location’s proximity to a TriMet Bike and Ride facility as well as a transit center gives it a critical context within Gresham’s transportation network. Currently, the street has a design that leads to conflict between users in the road. [Figure 9](#) displays the area as well as the direction and quantity of cyclists over the observation period. [Figure 10](#) shows the

number of cyclists observed per hour over the observation period.

Through data collection, students found that:

- Some cyclists used Hood or Kelly Avenues as connectors to and from the Wy’East Path but most continued in the sharrow along the main path on 10th and 8th Streets.
- Cyclists consistently boarded and deboarded busses and light rail at this location.
- Most sidewalks are very narrow.

FIG. 9
City of Gresham data visual with arrows



Number of Cyclists Over Observation Period

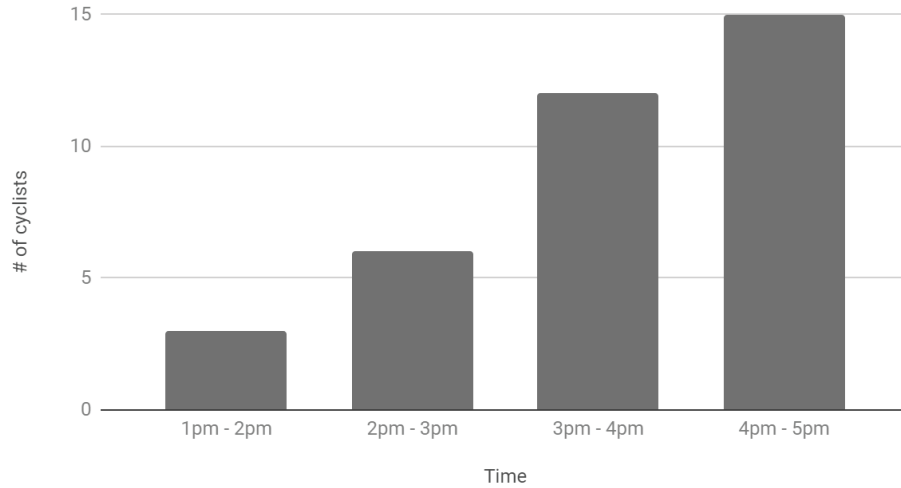


FIG. 10
City of Gresham
bicycle counts

MICRO-MOBILITY IN EUGENE

Two groups collected data regarding bicycle infrastructure in Eugene. One group focused on the intersection of Willamette Street and Broadway, the center of the downtown core, while the other group collected data around 5th Street Market.

Mobility Network - Downtown Eugene

Sustainable Cities Year Project
PPFM 410 Winter '19
Tom Witham, Ian Lowell, Carter McLaughlin, Lia Kashuba

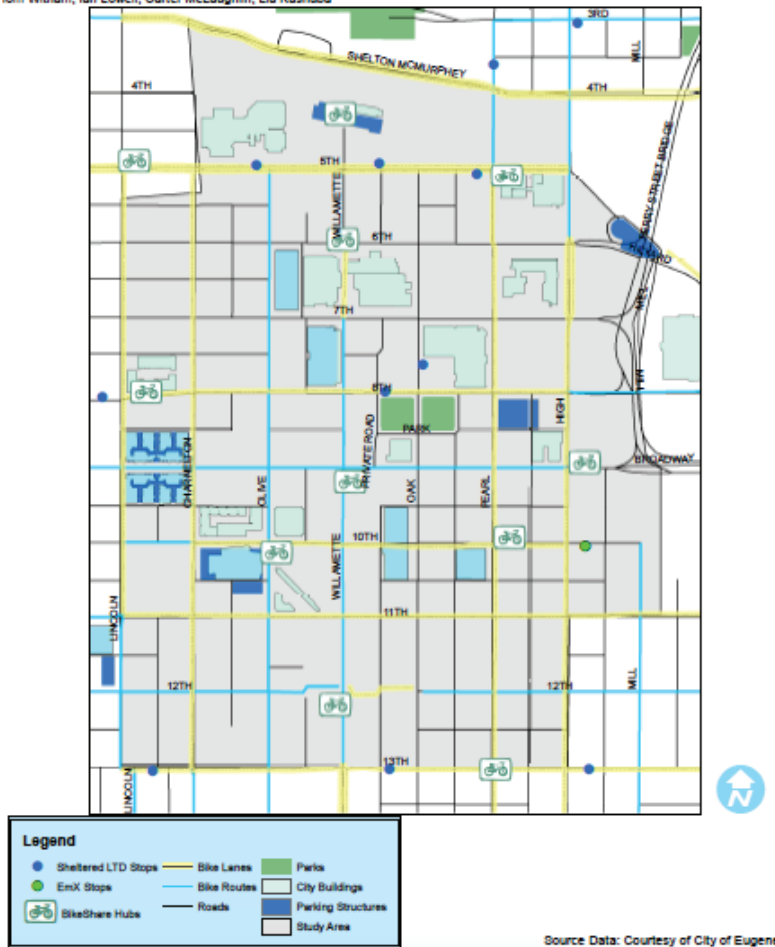


FIG. 11
City of Eugene
bicycle infrastructure
downtown

Existing Bicycle Infrastructure

Figure 11 shows the existing infrastructure in the downtown area.

Figure 12 shows the existing bicycle infrastructure surrounding the 5th Street Market. This area was selected

due to its frequent number of travelers using different modes of transportation and its need for infrastructure improvement to support newer modes of micro-mobility.

FIG. 12

City of Eugene bicycle infrastructure 5th Street Market area

- 1) Designated Bike Lane (North-South)
- 2) Designated Bike Lane (East-West, West-East)
- 3) Designated Bike Lane (South-North)
- 4) Designated Bike Racks
- 5) Designated Bike Racks



Bicycle Observations

Members of one group observed the intersection of West Broadway and Willamette Street. This intersection was chosen for observation because it is central to the downtown corridor's mobility network. Data were collected from 3:00 to 7:00 p.m. so students could observe during the typical peak time of traffic. Data were specifically collected regarding bicyclist volume and any generally noteworthy characteristics. One note is that on Friday and Saturday it was raining, and on Sunday and Monday it was not. Bicyclist volume was the highest on Friday with an average of 34 bikes

per hour, second highest on Saturday (16.25 bikes per hour), third highest on Monday (16 bikes per hour), and lowest on Sunday (9 bikes per hour) (see Appendix E). Over the four observation days:

- 5:00–6:00 p.m. time period had the highest volume of bikes (19.5 per hour)
- 3:00–4:00 p.m. and 4:00–5:00 p.m. had 19.25 bikes per hour on average
- 6:00–7:00 p.m. time period had the lowest volume at 17.25 bikes per hour (see Figure 13)

Members of another group each observed 5th Avenue, Pearl Street, and High Street around the 5th Street Market area for a four-hour period between Friday and Monday in mid-February, from 3:00 to 7:00 p.m. This time was selected in order to observe the difference between daily commuters passing through and people arriving for weekend leisure. Data collection included an intake and analysis of the current infrastructure

of the area, as well as observations of bicycling usage and patterns. Data also included recordings of any perceived safety risks or obstructions.

Data show that Monday and Friday had the highest bike usage around the 5th Street Public Market, as seen below in [Figure 14](#). This information tells us that this area could see commuters travelling to and from work in the area more than customers travelling to the shopping center itself.

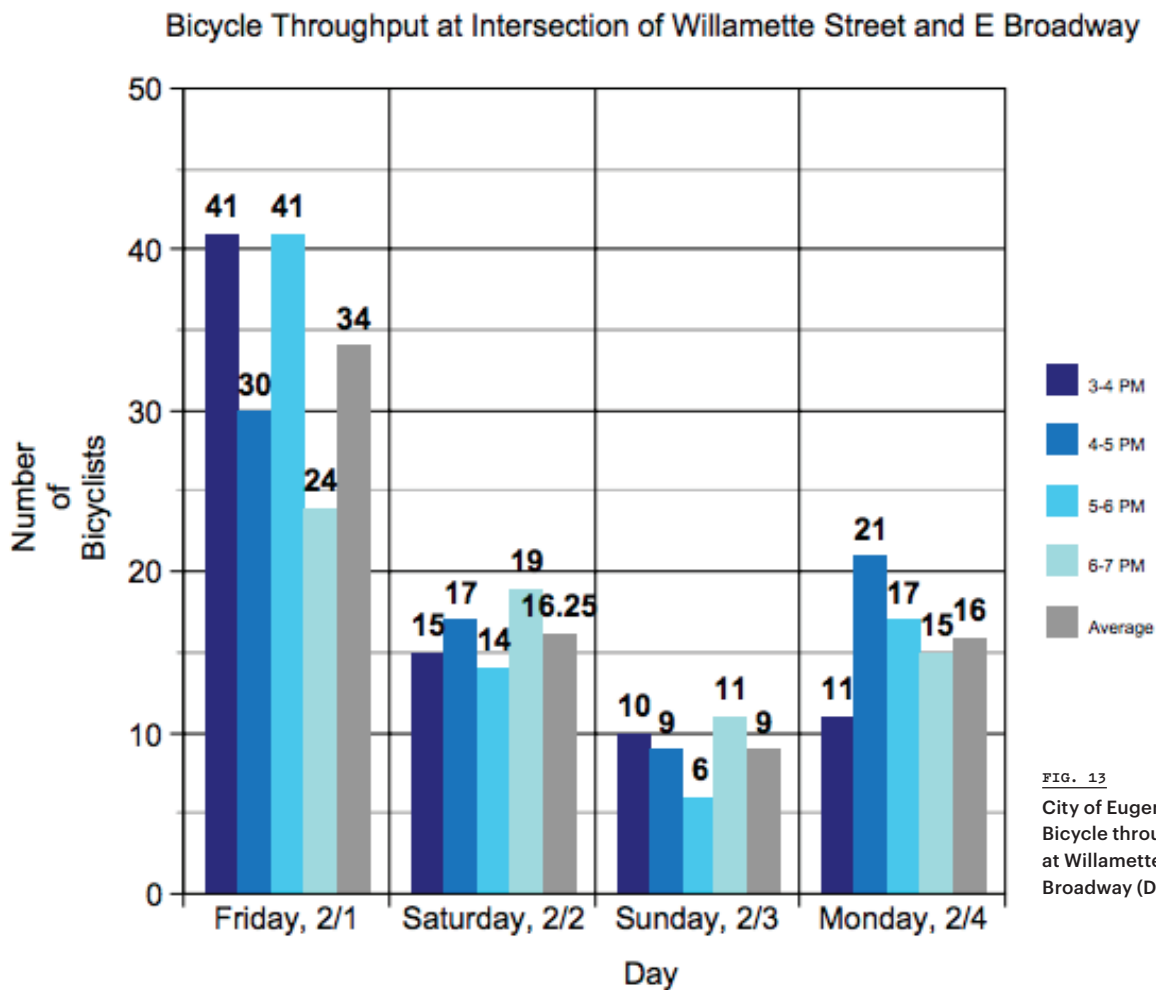


FIG. 13
City of Eugene
Bicycle throughput
at Willamette and
Broadway (Day)

Number of Bicycles Counted Around 5th Street Market

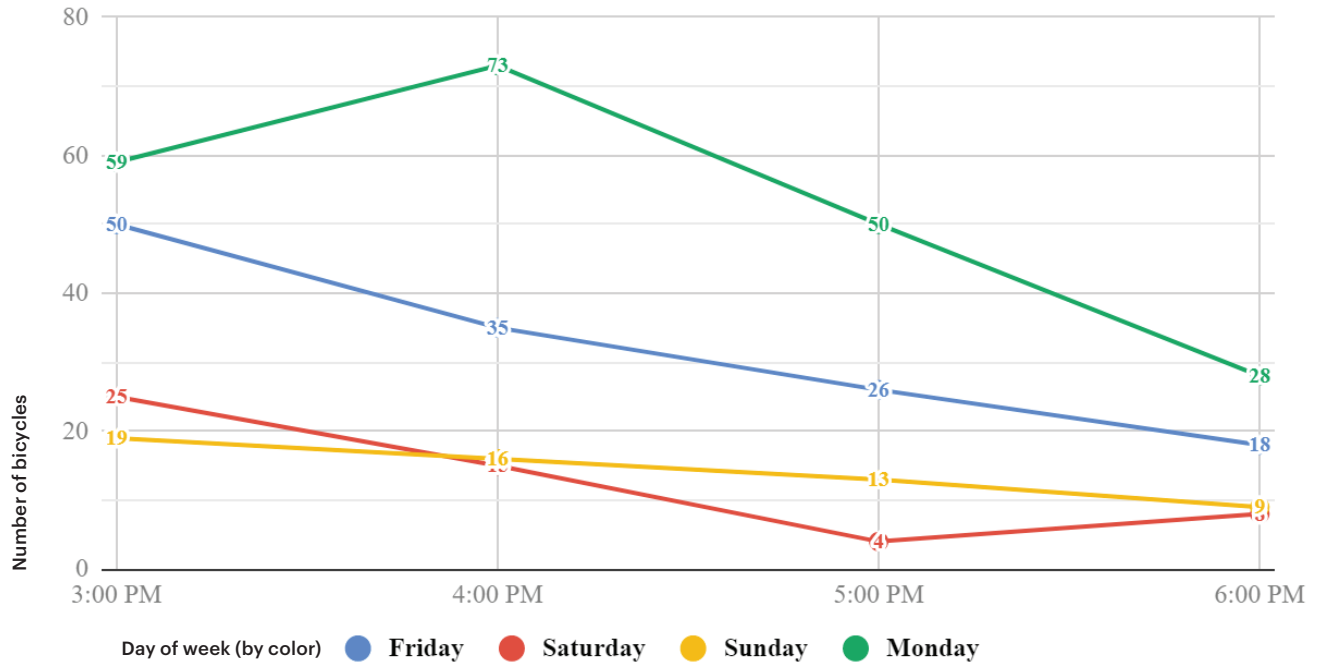


FIG. 14

City of Eugene Bicycle Count
Data around 5th Street Market

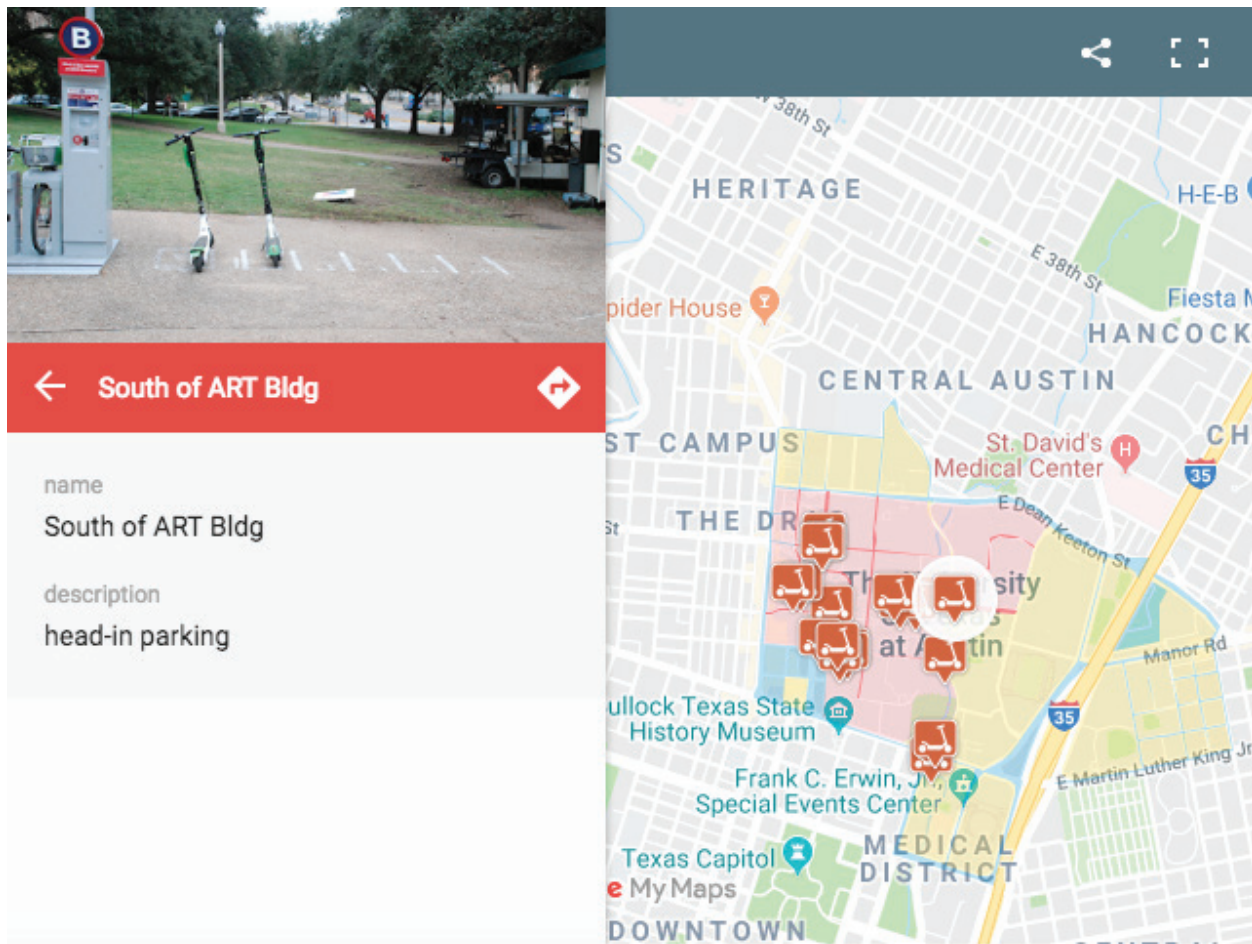
MICRO-MOBILITY PROGRAMS IN OTHER U.S. CITIES

With emerging micro-mobility technology, cities are tasked with determining where e-scooters should ride and park as well as who can ride them. Below are examples of cities who have tested different forms of policy and infrastructure, guiding the recommendations made in the following section.

Parking Infrastructure and Policies

To encourage parking in provided parking corrals, the University of Texas at Austin provided an interactive scooter parking map that allows users to see where designated scooter parking is located and what parking corrals look like (University of Texas at Austin 2019). This gives users a clear reference for where and how to park. For areas where designated parking is less feasible, a comprehensive guide summarizing the parking guidelines specific to the area, such as the *Powered Scooter Parking Requirements and General*

Guidelines released by the City of San Francisco, can be useful (Reiskin 2018). This guide urges e-scooter users to park upright and either in the furniture zone or designated areas. Additionally, it instructs users not to park near “emergency exits,” “against building facades,” “on sidewalks less than 9 feet wide,” or “anywhere two pedestrian paths of travel intersect,” among other instructions (Herron 2018). The second approach to encouraging proper e-scooter parking, often used in conjunction with the first, is to conduct stops and citations of riders who ride or park incorrectly (Sisson 2018).



Cities can also fine scooter companies for parking violations committed by users. The city of San Francisco, for example, fines scooter companies up to \$500 for each parking violation and allocates revenue towards general enforcement under the terms of the contract (Rudick 2018). Enforcing fines on the providers encourages them to come up with creative solutions to parking issues. For example, electric scooter share company Skip has camera-equipped scooters that can sense parking jobs that aren't "upright or in the furniture zone." The app can then notify users to repark and coach them on how to park better in the future (Mantri 2018).

In order to influence cities' parking regulations, programs use fees

and incentives to enforce these regulations. For example, in Eugene the PeaceHealth Rides bikeshare program rewards cyclists who park their bicycles at PeaceHealth docks with a \$1 credit and charges a \$1 fee for those who do not. This reward and fee system may influence riders' choices without discouraging them from using the system altogether. Since e-scooters are so new at this point, there are few examples for best practices regarding parking and ridership policies. However, their similarities to bikeshare services in Eugene and other cities across the country suggest that a geo-fencing reward and fee system may be equally successful.

FIG. 15
Parking Guide
by UT Austin

Micro-mobility Lanes

E-scooter and bike share usage has expanded around the country. The major consensus around the U.S. is that while in use, e-scooters belong in bike lanes, or “micro-mobility lanes,” which has become a more appropriate name. From the hometown of e-scooters, Santa Monica’s Mobility Manager Francie Stefan describes transportation as a diverse ecosystem and explains that cities should “offer a diversity of options that coexist for the long term,” such as mixed-use micro-mobility lanes (“Sidewalk Wars” 2018).

Pilot Program

In 2018, the city of Portland, Oregon launched a 120-day shared electric scooter pilot. During this four-month period, the City allowed three companies (Bird, Lime, and Skip) to launch in the area. The city of Portland set a fleet cap of 2,500 e-scooters and a \$0.25 per-trip surcharge during its 120-day pilot program. Through this pilot, the city brought in \$118,245.25 from “application fees, permits, use fees and penalties,” and reported spending “\$86,420.86 on administration, enforcement and evaluation fees” (“Frequently Asked Questions” 2019).

The city of Portland delegated the following tasks to the companies:

- Provide workshops for riders, chargers, and for general community education.

- Employ ambassadors to pass out helmets.
- Provide mandatory in-app training to users.
- Require users to prove that they have parked appropriately.

The city of Portland itself took on the following responsibilities (“Frequently Asked Questions” 2019):

- Distribute information “via print and digital communication channels.”
- Portland Bureau of Transportation (PBOT) hosted “education events to educate scooter riders about safety and their responsibilities as riders.”
- “Police and Regulatory and Parking Enforcement Staff from PBOT” enforced state and city rules.

Portland also implemented policies designed to achieve both equitable distribution and pricing of e-scooters. The City required companies to place a minimum number of scooters in low income and historically underserved areas during their 120-day pilot program (Reiskin 2018). Portland also required e-scooter companies to provide a reduced fare to low income residents and encouraged companies to provide a cash fare option (“Frequently Asked Questions” 2019).

Recommendations

This section outlines recommendations based on data analysis and research of programs and policies that other U.S. cities have implemented. These recommendations are separated into four sections: parking in Gresham, parking in Eugene, micro-mobility in Gresham, and micro-mobility in Eugene. Each section contains short-term, mid-term, and long-term recommendations tailored to each city's needs and goals.

PARKING IN GRESHAM

Through data collection and analysis, students found Gresham parking rarely meets the 85% occupancy desired to constitute pricing parking in the downtown area at this time. In the future if parking demand increases, this may be an option the city of Gresham can explore.

Short-Term Recommendations

- Expand transit-selective parking requirements
- Designate loading and unloading zones

Expand Transit-Selective Parking Requirements

Gresham's parking requirements are progressive compared to the rest of the country. The plan defines parking as a secondary use to pedestrian access, calls for one off-street parking space per residential unit, and no off-street spaces for commercial with some exceptions for high-capacity venues. Additionally, there is a provision for one off-street parking space for every 1,000 square feet of floor area for properties within 1,000 feet of a MAX station. We find this to be a prudent policy and recommend Gresham

consider employing transit-selective parking requirements strategically to encompass other modes going forward. If parking supply is concentrated in key areas near downtown and other high demand areas, it becomes easier and cheaper to provide scooter, bike, bus, municipal shuttle, and AV access between those lots and key destinations.

Designated Loading and Unloading Zones

Loading and unloading zones will become increasingly valuable and necessary as ride-hail services gain in popularity. By designating curb space specifically for loading and unloading, particularly for ride-hail vehicles in the downtown area, Gresham can prevent these vehicles from stopping mid-traffic to drop off passengers.

Mid-Term Recommendations

- Parking time limits
- Pay-to-park systems

Parking Time Limits

In the next few years, we recommend implementing marked parking time limits in certain high demand zones. To avoid placing an undue burden on downtown workers, parking stickers or tags can be sold to employees and business owners for underutilized locations. This would move many vehicles that are regularly parking in prime locations to another area, leaving more parking for downtown customers. Costs would be minimized by a combination of selective enforcement during peak times and revenue gained from tag sales and tickets for violations.

Pay-to-Park Systems

Wilson's Parking Reform Made Easy states that 85% occupancy is the ideal rate at which priced parking is effective (Willson 2013). Downtown Gresham often fails to reach this level, so we agree with Gresham officials that discussion of parking pricing can be delayed for now. As population continues to grow in the area and occupancy rates for downtown parking increase, pay-to-park systems may be considered. Oregon Metro's Distributed Forecast projects that between 2015 and 2040, Gresham's will grow from 38,412 to 45,785 households. The number of projected jobs will also increase by more than 15,000 (Hamilton 2016).

We recommend installing pay-to-park systems after testing out parking time limits, as the two can be used in conjunction with one another. Funding for enforcement would be gathered

by parking permit sales and tickets for parking violations. If other systems are put into place early (i.e. parking time limits), then a fund could be set up for the initial costs of installing pay stations. This could lessen Gresham's cost burden.

Long-Term Recommendations

- Land use tax
- Pedestrian mall
- Multi-modal transit card
- Limiting parking to designated areas

Land Use Tax

We recommend a land-value tax structure that prices land improvements at a lower rate than unimproved land. One potential barrier to development is tax increases when land is improved. Through a land-value tax, improved land will not be taxed at a higher rate than unimproved land, removing this barrier and encouraging owners of underutilized downtown properties to develop or sell them. This may reduce privately-owned parking lots in the mid-term. Additionally, in conjunction with other Gresham plans to increase transit ridership and multi-modal transportation options, this could discourage single occupancy vehicle use downtown without limiting mobility. It may also encourage developers to build multi-family housing, office spaces, restaurants, and other businesses that would benefit the economy and livelihood of the downtown corridor. This system works well in Pittsburgh and Scranton, Pennsylvania, as well as several European countries to incentivize development over land stagnancy and speculation (Coate 2017).

Pedestrian-Only Mall

In order to meet Gresham's goal of creating a place that visitors and community members can enjoy, shutting down a section of Main Street to car traffic or creating auto-limited streets for an outdoor pedestrian marketplace is a future possibility worth considering (City of Gresham 2018). Rather than the existing woonerf, which is planned to connect the park area to the transit station, a pedestrian marketplace would incorporate the commercial district, capitalize on Gresham's downtown as a civic focal point, and create a pleasant place to loiter, perform, shop, and meet neighbors. The success of Church Street in Burlington, Vermont demonstrates that people are more willing to linger when there are things to do and will patronize local businesses if getting there is easy. In the 1970s, the city of Eugene had a pedestrian-only mall encompassing a large section of downtown. Community members had concerns about the limited number of parking spots when this pedestrian mall existed. The city of Gresham could minimize some parking concerns by limiting the pedestrian mall to two or three linear blocks, a smaller section than Eugene's former pedestrian mall.

For accessibility purposes, several ADA parking spots should be placed near the area's entrance, allowing disabled patrons to frequent the mall. It would be best to start with two to three ADA spaces and then add more designated spaces later if need is apparent.

In addition to being a fun downtown entity, a pedestrian mall has the ability to generate revenue for the city. This could be done by allowing markets, festivals, and other events to operate

in the area for a fee or for a percentage of sales. Because it is meant to be an inviting space for community members, the possibilities rely on community needs and wants.

Multi-Modal Transit Card

One of the barriers to transit use is the inconvenience of payment. A transit card that can pay fares on buses, trains, ride-sharing companies, and micro-mobility rentals may help reduce this inconvenience and encourage people to switch from single occupancy vehicles to other modes. Eventually, such a card could be made digital and used on an app like Google Pay. Gresham could partner with neighboring Portland-area cities to provide transit across the urban area as a regional card's utility increases with the size of its service area.

Limiting Parking to Designated Areas

In order to reduce congestion in downtown as the population grows, the city of Gresham can build or designate structured parking areas outside of the downtown core to accommodate visitors and commuters. In turn, the City can place e-scooters and bicycle rentals near parking structures and throughout downtown, encouraging use of alternative transportation modes. Micro-mobility rentals can utilize the transit card to provide service to low income areas that may not be accessible by transit alone. The City can also provide frequent shuttle services (electric AV or streetcar) from parking structures to downtown. This may not significantly reduce single occupancy vehicle use, but may reduce their use in the downtown core and facilitate transit service by concentrating pick-ups and drop-offs.

PARKING IN EUGENE

Short-Term Recommendations

Designated Loading and Unloading Zones

With new ride-hailing programs such as Lyft and Uber operating in Eugene, the demand for safe and legal places to load and unload passengers is increasing. During a tour hosted by city of Eugene staff, Parking Services Manager Jeff Petry mentioned that the City is witnessing ride-hail vehicles stop in the middle of traffic to load and unload passengers, disrupting traffic flows. To mitigate this issue, we recommend that four parking spaces along Broadway Street between Willamette and Olive Streets be used as loading and unloading zones between 8:00 p.m. and 4:00 a.m. every night. By designating several spots along this block as loading and unloading zones, ride-hailing vehicles will have a designated place to park while people enter and exit the vehicle, preventing unsafe practices and impeded traffic flows. Two spots could be located on the south side of Broadway closest to Willamette Street, serving riders arriving at and departing businesses

such as Sizzle Pie and Killer Burger. The other two spots could be located on the south side of Broadway closest to Olive Street, serving riders arriving at and departing businesses such as Cowfish Bar and The Davis Restaurant and Bar.

During the day, these spots can remain metered and be used as regular parking, since our data show that ride-hailing is infrequent during the day in that area. 8:00 p.m. is late enough to where people headed downtown are typically going to a bar or restaurant. Bars close at 2:00 a.m. and Sizzle Pie closes at 3:00 a.m., so extending this loading and unloading zone period to 4:00 a.m. allows people to hail a Lyft or Uber once these spaces are closed. Designating them as loading and unloading zones from 8:00 p.m. to 4:00 a.m. will not affect parking revenues since parking is currently free during this timeframe.

As for the 5th Street Market, two high traffic drop-off and pick-up locations we noted are depicted by red squares in Figure 16. These spots are used frequently for passenger drop-offs and pick-ups due to their

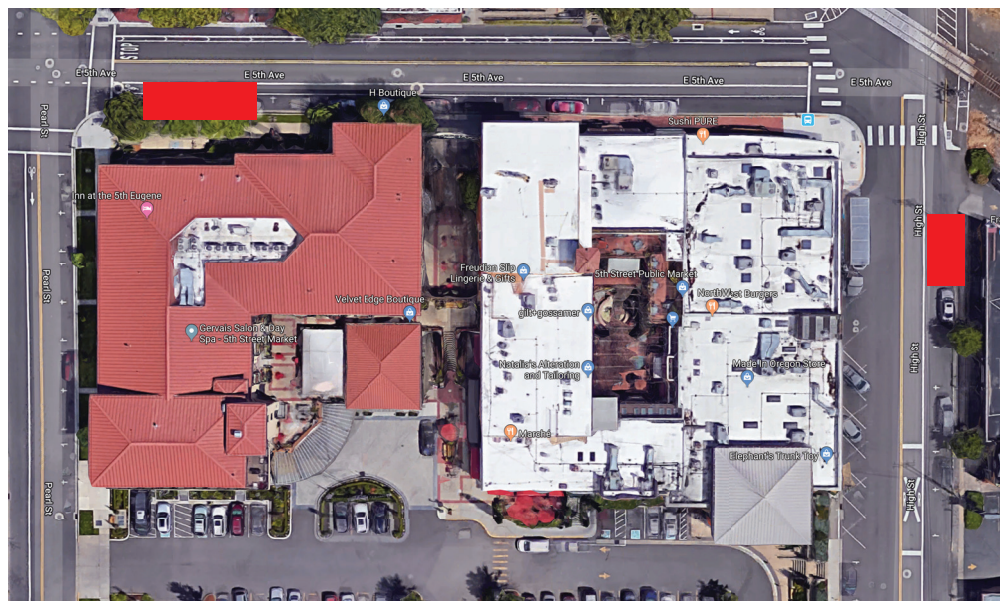


FIG. 16
City of Eugene load and unload 5th Street Market

proximity to the nearby hotel, Bolt Bus stop, and shopping center. Since all these destinations are used regularly throughout the day and week, there is no need to adjust the zoning for these spaces at different times. As a result, we recommend transforming these existing parking spaces into designated drop-off and pick-up sites. Because these spaces are already parking spots, transitioning them into drop-off and pick-up spaces would require little change. A sign by the spots and/or paint to signify their function could suffice. In addition, the spots could be moved to a different area location if any issues arose. If converting parking spots to full-time loading zones is a major concern, the City could run these locations as a “pilot program” with temporary signs and assess their success at a later date.

Long-Term Recommendations

Increasing Pricing for Equal Parking Distribution

Parking outside of the downtown core is underutilized. With data given to us by the city of Eugene, we calculated the overall percentage of time spent at or above an 85% occupancy rate. Broadway is over the 85% occupancy rate 46% of the time while Willamette Street is over 38% of the time. Streets such as Charnelton Street, 8th Avenue, and 11th Avenue are above

85% occupancy 0% of the time. In order to redistribute parking into the underutilized areas, we recommend raising the price of parking downtown and leaving the peripherals priced the same. Alternatively, the city of Eugene can leave downtown prices the same and make the peripherals cheaper. Pricing the curb high enough will make people change where they park. Just a few blocks outside the core, most streets never become more than 70% full, as seen on Willamette Street between 11th and 13th Avenues. Shifting parking from directly downtown to just outside of it allows for a more equal distribution of cars, easier deliveries for trucks and less congestion.

The city of Eugene has started to implement sensor-based data collection methods similar to *SFpark* in many of their downtown blocks. They can measure performance using parking meters already in place to determine if prices are high enough to change individual behavior. This will allow the City to see in real time whether the differences in prices are producing desired effects.

By redistributing parking outside of the downtown core, parking spaces will be available and could be converted into loading and unloading zones, parklets, or micro-mobility parking as mentioned in our previous recommendations.

MICRO-MOBILITY IN GRESHAM

Short-Term Recommendations

Reutilize Parking Spaces for Alternative Purposes

Many parking spots in downtown Gresham are around 60% average occupancy, falling below the 85% target rate. Parking spots with low utilization can be transformed to better utilize the public space. Examples of items that could be placed in current parking spots are food carts, parklets, cafe seating, loading and unloading zones, or micro-mobility parking for bicycle or e-scooter share systems.

Mid-Term Recommendations

Launch a Micro-Mobility Pilot Program

In the mid-term, the city of Gresham could investigate launching an e-scooter pilot program in the downtown area. Portland ran a 120-day pilot program and is launching a yearlong pilot in April 2019 (Portland

Bureau of Transportation 2019). It is recommended that Gresham set a fleet cap during this pilot program.

Long-Term Recommendations

Create Micro-Mobility Lanes where only Sharrows are Present

In the wake of bicycle and scooter share, there is a need for lanes for micro-mobility modes to travel separately from cars. Currently, Gresham has many sharrows, or shared lanes where vehicles and micro-mobility modes travel in the same space. Riders may resort to riding on the sidewalk out of safety concerns and unintentionally create rider-pedestrian conflict. Protected bike lanes are best practice, but understandably are not always feasible. Micro-mobility lanes, even unprotected, will help guide micro-mobility users off Gresham's often narrow sidewalks.

MICRO-MOBILITY IN EUGENE

Short-Term Recommendations

- Create micro-mobility parking
- Transition bike lanes into micro-mobility lanes that allow for E-scooters and other low-speed transportation modes
- Electric scooter education
- Electric scooter fleet cap

Create Micro-Mobility Parking

Since e-scooters are dockless, cities need to provide adequate parking to ensure they do not congesting sidewalks, hinder accessibility, or become a public nuisance. To combat this potential issue, we recommend the

city of Eugene implement sidewalk and in-street e-scooter parking corrals.

The first type of e-scooter parking infrastructure is the sidewalk parking corral. These are relatively inexpensive at \$200 per corral (Linton 2018). This kind of parking takes advantage of unused space (for example, in the furniture zone) and only requires paint (see [Figure 17](#)). Some extra space can be found between planters along East Broadway and Willamette Street or be created by removing some of these planters. Additionally, the City can return certain chained-off sections in the downtown corridor (such as the



FIG. 17
E-scooter
corral paint example

area at Broadway and Olive Streets) to the public and utilize some of this reclaimed space for e-scooter parking. We also encourage the city of Eugene to place corrals at various LTD stops to link the two modes by providing a potential first- and last-mile solution to transit trips.

The second type of e-scooter parking infrastructure is the in-street facility, which is a painted rectangle surrounded by plastic bollards (see [Figure 18](#)). In-street parking accommodations are about \$800 each (Linton 2018). It is recommended that in-street corrals are minimal and well distributed because the downtown corridor is relatively small, and these facilities have the capacity to house many e-scooters. They should be placed in converted parking spots in central areas that attract many people, such as outside restaurants, bars, and concert venues. The downtown sidewalks are narrow at times, and by utilizing a parking space, sidewalks remain open and create a more walkable space. A walkable and bikeable city, as identified by Eugene’s Active Transportation Strategy for 2017-2021 is “more equitable because senior citizens, people with disabilities, and

children and youth will have the same mobility opportunities as the driving populations” (MoveEug 2017).

Transition Bike Lanes into Micro-Mobility Lanes

We expect that e-scooters will be very popular in the multimodal area of the 5th Street Public Market. The area already has a number of bike lanes with relatively good accessibility and connectivity. Although e-scooters are not yet in Eugene, they are expected to come very soon, and it is likely that they will be drawn to the many things the 5th Street Public Market has to offer. In preparation, Eugene may want to ensure that all e-scooters be driven where bikes are permitted: in bicycle lanes and on streets where sharrows are present. By placing e-scooters in bicycle lanes, the city would separate them from pedestrians and cars, both of which are safety hazards. Additionally, inviting e-scooters into bicycle lanes would set the standard for future micro-mobility modes to come. It would change the limiting definition of “bicycle lane” to be more inclusive for the future.

Electric Scooter Education

It is recommended the city of Eugene follow similar practices to Portland's 120-day e-scooter share pilot. The City can provide information regarding e-scooter guidelines to educate citizens before the scooters are launched. The distribution of safety information and guidelines via email, print-outs, and informative conference sessions are three platforms to provide education about e-scooters. In addition, making helmets available to be purchased or rented through the city of Eugene at various locations could make for safer and responsible riders. The city of Eugene would need to enforce the state-wide scooter laws such as:

- Required helmet use
- No riding on sidewalks
- Age restrictions (must be 16 years old)

Information about these laws could be distributed through the aforementioned education materials.

Electric Scooter Fleet Cap

Similar to the Portland 120-day pilot program, it is recommended that the city of Eugene set a fleet cap of 700 e-scooters, about ¼ of the Portland fleet cap. We decided on this number because Eugene has the population of about ¼ that of Portland's. Eugene can also institute a \$0.25 per-trip surcharge and charge scooter companies a permit fee to be determined by the City.

Ideally these policies will ensure that the scooters do not create an overly-congested urban environment by physically limiting their presence and dedicating space to their storage. The fees may also help cover the cost of implementing parking infrastructure and enforcement of parking and moving violations by users.



FIG. 18

E-scooter corral paint and bollards example

Mid-Term Recommendations

- Implement a reward and fee system for e-scooter parking
- Require e-scooter companies to geofence service areas
- Electric scooter share stations in low income and underserved neighborhoods

Implement a Reward and Fee System for E-scooter Parking

The 5th Street Market already has a bikeshare hub and many bike racks. Because of this existing infrastructure, implementing a reward and fee system for e-scooter parking would be relatively simple and beneficial for the area. The City could implement credit, similar to that of PeaceHealth bikeshare, for e-scooter users to park in certain areas like bike racks and hubs. In this area, the City can encourage a partnership between PeaceHealth Rides and e-scooter companies, the latter currently recognizing PeaceHealth docks as a proper place to park. This rule would encourage users to park their e-scooters in appropriate places, which would ideally declutter and improve area safety as a whole.

Electric Scooter Share Stations in Low Income and Underserved Neighborhoods

We also recommend that Eugene implement policies regarding equitable access, following Portland's example.

For example, Eugene can mandate that a certain portion of the fleet be deployed in low income or historically underserved areas. We believe that the following recommendations will foster a more equitable e-scooter program:

- Place scooter minimums in certain low income areas such as West Eugene and in areas of low income housing.
- Place scooter minimums in areas that are underserved by the current public transportation network.

Long-Term Recommendations

Protected Micro-Mobility Lanes

The area surrounding the 5th Street Public Market currently has bicycle lanes on almost all sides, but none of those bicycle lanes are protected by a physical barrier. The city of Eugene could create physical barriers between cars and smaller modes of transportation like e-scooters and bicycles in order to protect all parties involved. Much like a curb, these barrier would discourage cars from impeding on the micro-mobility lane. This project would be long-term, as it requires swapping the placement of micro-mobility lanes and on-street parking, as well as implementing the actual barrier itself. Rider usage is projected to increase because the feeling of safety would be greater. Parked cars would protect bikes from traffic.

Conclusion

Students collected data about the existing transportation infrastructure in Eugene and Gresham, analyzed this information, researched policies implemented by other cities, and made recommendations to both cities regarding planning for new mobility services.

New forms of mobility are emerging, such as transportation network companies, e-scooters, and bicycle share services, necessitating policies that address their operation within our cities and urban fabric. Cities also need to examine how these new modes will shape the urban fabric and change the demand for parking and curbside infrastructure. New modes and data lead to more questions about how new mobility will shape our future, emphasizing the importance of continuous research and policy evaluation.

The cities of Eugene and Gresham can consider recommendations provided by the Transportation Planning class to create policies and plans in preparation for new modes of mobility.

Recommendations regarding parking range from creating time limits and changing prices to establishing loading and unloading zones for transportation network companies or ride-hailing services. Recommendations regarding micro-mobility discuss parking infrastructure and requirements, allowing all micro-mobility modes to use bicycle lanes, and making sure modes are equitably distributed.

Mobility means access: transportation allows people to live, work, and shop in different areas, giving them access to opportunities. It is important as new forms of mobility emerge that cities prepare for them and create policies ensuring safe and equitable access.

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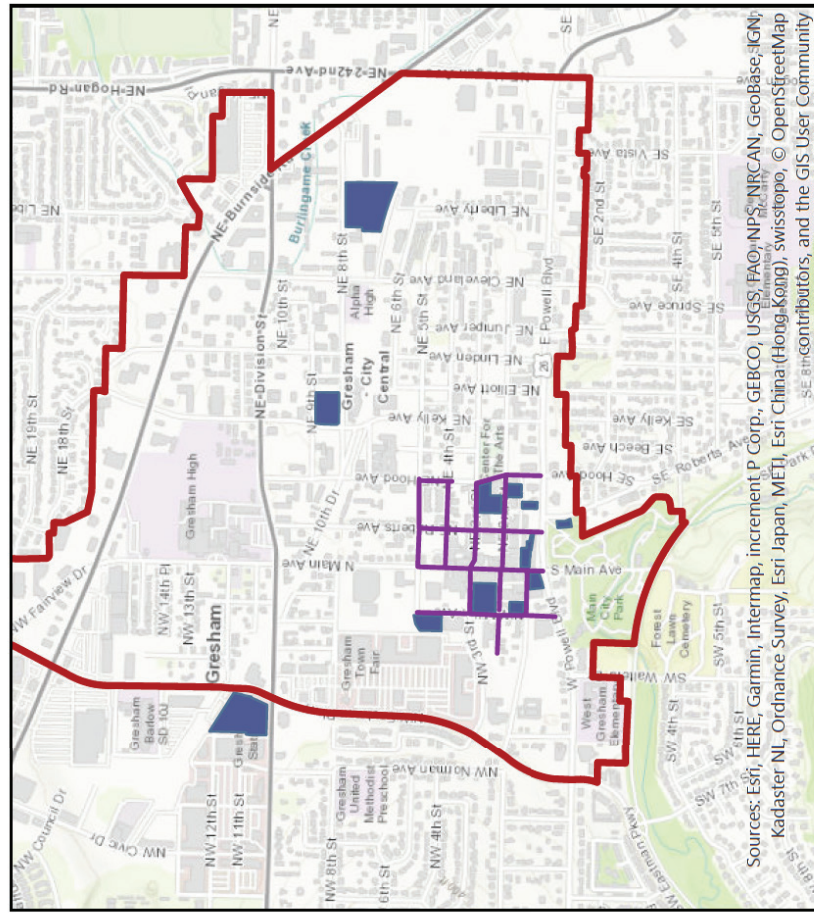
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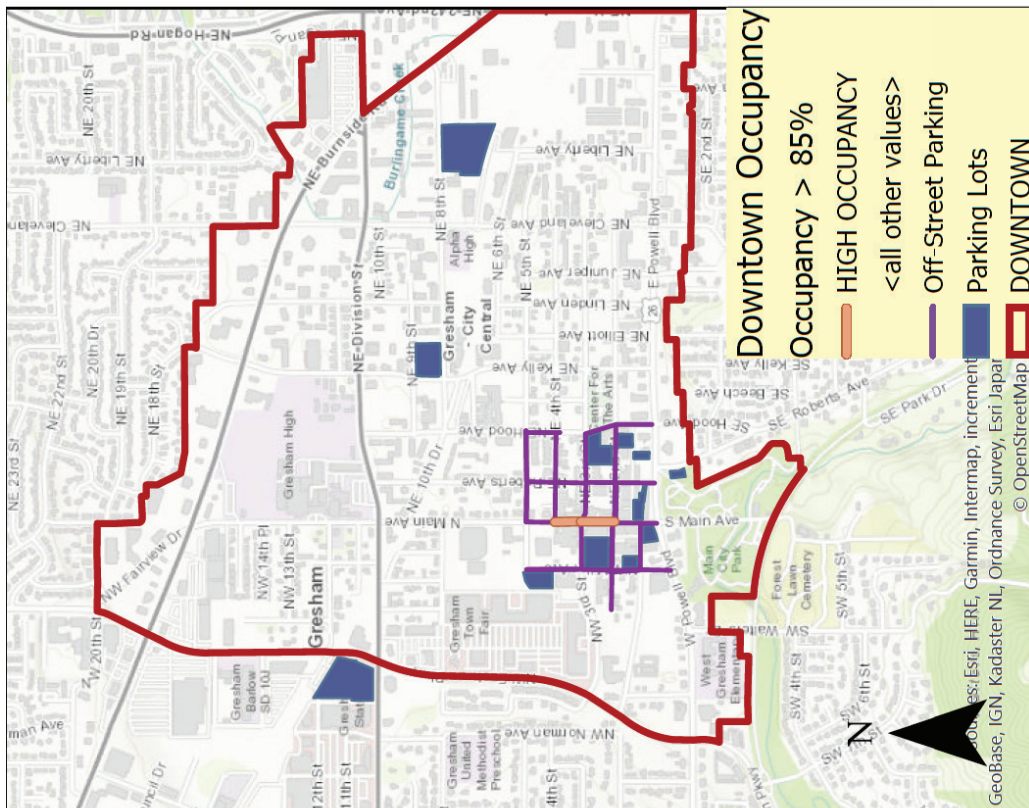
Appendix A

Downtown Gresham: Street Parking Occupancy

Location Street	Block	Average Occupancy Rate									
		2011	2012	2013	2014	2015	2016	2017	2018		
2nd	Main - Rot	46%	49%	57%	52%	61%	60%	33%	51%		
3rd	Main - Rot	56%	53%	67%	73%	71%	80%	54%	65%		
4th	Main - Rot	31%	56%	59%	60%	71%	58%	17%	50%		
Powell	Main - Rot	27%	40%	33%	30%	36%	42%	30%	35%		
Main	1st-2nd	68%	60%	64%	68%	70%	83%	75%	70%		
Main	2nd - 3rd	72%	72%	71%	95%	114%	109%	58%	84%		
Main	3rd - 4th	80%	86%	70%	95%	93%	71%	52%	78%		
Main	4th - 5th	29%	47%	4%	50%	56%	59%	60%	44%		
Roberts	2nd - 3rd	65%	66%	79%	59%	54%	68%	70%	66%		
Roberts	3rd - 4th	52%	76%	42%	61%	60%	56%	75%	60%		
Roberts	4th - 5th	45%	57%	13%	49%	56%	42%	52%	45%		
Roberts	Powell - 2r	51%	72%	40%	46%	61%	51%	54%	54%		



ABOVE: Occupancy rates in 2018 of street parking



ABOVE: Shows street parking occupancy between 2014 to 2016, showing occupancy > 85% in orange.

Appendix B

City of Eugene Map of Metered Parking Spaces in Downtown



Appendix C

BROADWAY BETWEEN WILLAMETTE STREET AND OLIVE STREET

Commercial buildings line the block of Broadway between Willamette Street and Olive Street downtown. The need for customer accessibility warranted a study of parking in the area. The observation period extended from 7:30 a.m. to 11:30 a.m. on Wednesday, January 30th, 2019 in order to capture the parking demand during a typical weekday morning. There are a total of 14 metered parking spaces available for vehicle use between Willamette and Broadway. Paid parking comprises all the provided automobile spaces on this block; drivers who wish to park free of charge must look elsewhere for car parking. Bicycle racks are present along the street as well.

Location

Broadway between Willamette Street and Olive Street
Wednesday January 30th from 7:30 a.m. to 11:30 a.m.

Total Capacity

- 14 metered parking spaces
 - 6 spaces on north side of Broadway
 - 8 spaces on south side of Broadway

Observations

- Private vehicles
 - 6 cars parked, 0 bikes at start of observations
 - No use of ADA spaces observed — remained unobserved during study period
 - Car turnover: 37
 - Cars typically stayed for either short or fairly long periods of time (either left within 20 minutes of parking or stayed over 1.5 hours)
 - Lower observed turnover after 10:30 am as more businesses open
 - Highest rates of turnover in front of Starbucks and Townshend's — usually less than 20 minutes spent parked
- Drop-offs/Pick-ups
 - Uber/Lyft: 1

- Unaffiliated with ride-hailing: 5
- If there was an open space, driver would use it as a loading zone. If not, then the driver would double park in the street.
- Commercial Vehicles
 - Most pass through, did not park on street
 - Deliveries transported on foot through alleyways connected to parking or Kesey Square
 - 4 commercial vehicles parked and left during observation.

BROADWAY BETWEEN OLIVE STREET AND CHARNELTON STREET

Broadway between Olive Street and Charnelton Street consists of a salon, a game development studio, and a vacant building on the north side of the block. The south side of the block consists of a convenience store, a restaurant, the Jazz Station, a martial arts studio, and a theater. The observation period extended from 1:00 p.m. to 5:00 p.m. on Wednesday, January 30th, 2019.

Eight parking spaces line both the north and south sides of Broadway, offering a total of sixteen metered spaces. At the start of the observation period, fifteen of the spaces were occupied, one of which by a police camera on a trailer that was stationary for the observation period. Of these spaces, one vehicle had an ADA placard and remained parked during the entire observation period. The observed turnover rate for vehicles on this block was 33. One person was dropped off by a personal vehicle. Lyft, Uber, and taxi drop-offs did not occur. Deliveries did not occur either.

Location

Broadway between Olive Street and Charnelton Street
Wednesday January 30th from 1:00 p.m. to 5:00 p.m.

Total Capacity

- 16 metered parking spaces
 - 8 parking spaces on the north side of Broadway
 - 8 parking spaces on the south side of Broadway

Observations

- Cars at arrival: 15
- Turnover: 33
- Cars at departure: 15
- ADA: 1
- Rideshare pick-ups or drop-offs: 0

EAST 8TH AVENUE AND EAST PARK STREET (EUGENE SATURDAY MARKET)

East Park Street borders the Eugene Saturday Market Square and is occupied by commercial buildings and a cafe. Pertinent to parking flow is the proximity to the Lane County Public Services Building, which houses a wide variety of municipal government offices. The area was observed on Monday, January 28th, 2019 from 10:00 a.m.–12:00 p.m.. There were two alleyways connecting East Park Street with Pearl Street and East Broadway. There are zero permanent hardscape installations for bike security.

Location

East 8th Avenue and Park Street (Eugene Saturday Market)
Monday, January 28th, 2019 from 10:00 a.m.–12:00 p.m.

Total Capacity

- 19 On-Street Metered
- 1 On-Street Metered (ADA)
- 1 On-Street Motorcycle
- 0 Hardscape Bike Lockup

Observations

- 16 Spots Filled at 10:00 (+1 Motorcycle)
- 18 Spots Filled at 12:00 (0 Motorcycle)
- Turnover over two hours was 17 cars and 1 motorcycle

Commercial Vehicles

- 2 FedEx delivery vehicles utilized the alleyway near the cafe
- Very little commercial vehicle activity, most likely due to the Hairpin corner and lack of product-based commercial enterprises in the area

Drop-Offs/Pickups

- 0 Rideshare
- 2 Taxi Drop-offs to Café

Conclusion

Overall traffic was very slow compared to the surrounding area. There didn't seem to be much business activity in the area, most people would arrive in groups to go the cafe, and then leave in those same groups an hour or so later. Area is fairly secluded regarding traffic, and all the spots were never occupied 100%.

WILLAMETTE STREET BETWEEN 13TH AVENUE AND 11TH AVENUE

This stretch of road lies between the 13th and Olive apartments and a row of restaurants and businesses that lead into the heart of downtown Eugene. With such a high concentration of housing and business, this street experiences constant foot, bicycle, and car traffic. 12th Avenue cuts through the middle of the street, but in this specific block, is more of an alley and has no car access. This allows for greater pedestrian flow through the area. Even with such high usage, the street stayed under the 85% occupancy level. More detail is shown in the observations below.

Location

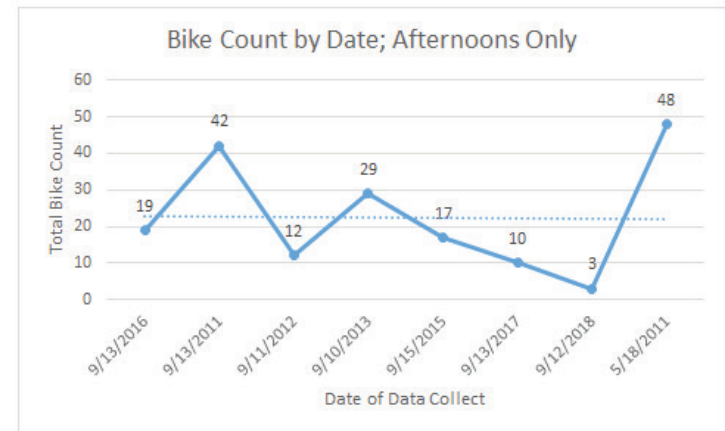
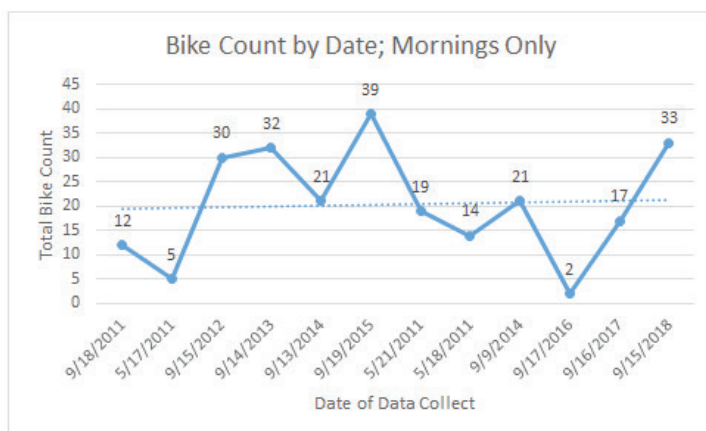
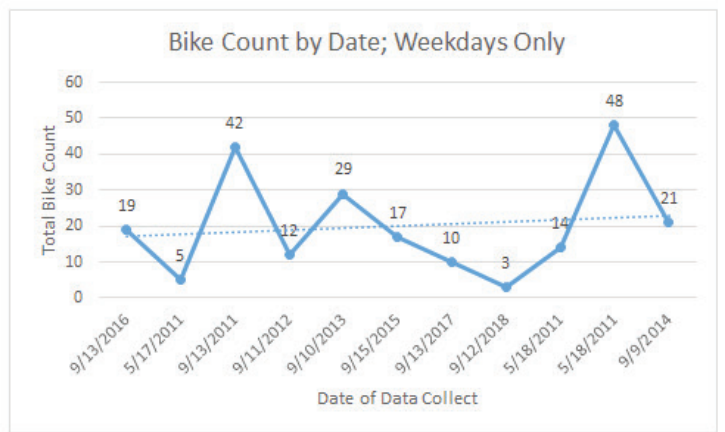
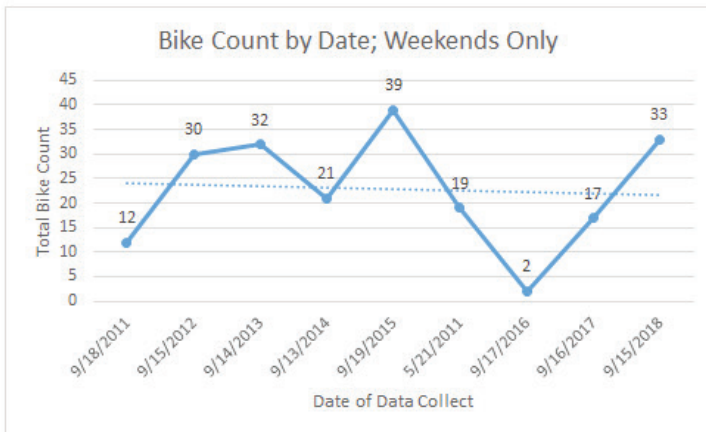
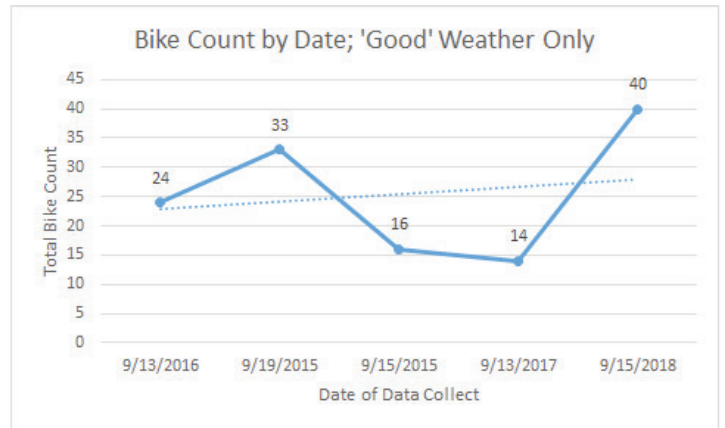
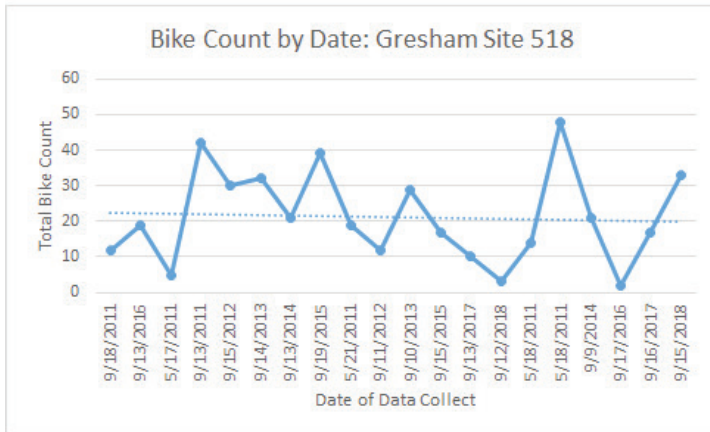
Willamette Street between 13th Avenue and 11th Avenue
Friday, February 1st, from 1:00 p.m.–5:00 p.m.

Observations

- 28 spaces total
 - Spaces east side of street: 20
 - Spaces west side of street: 8
- Occupied on arrival: 17 = 60%
- Occupied when left: 20 = 71%
- Left during observation: 65
- Arrived during observation: 68
- Drop-off/pick-up: 6 cars — 4 in fire lane illegally, 2 legally but did not pay meter
- Commercial load/unload: 1 — UPS truck illegal fire lane park, 25 mins

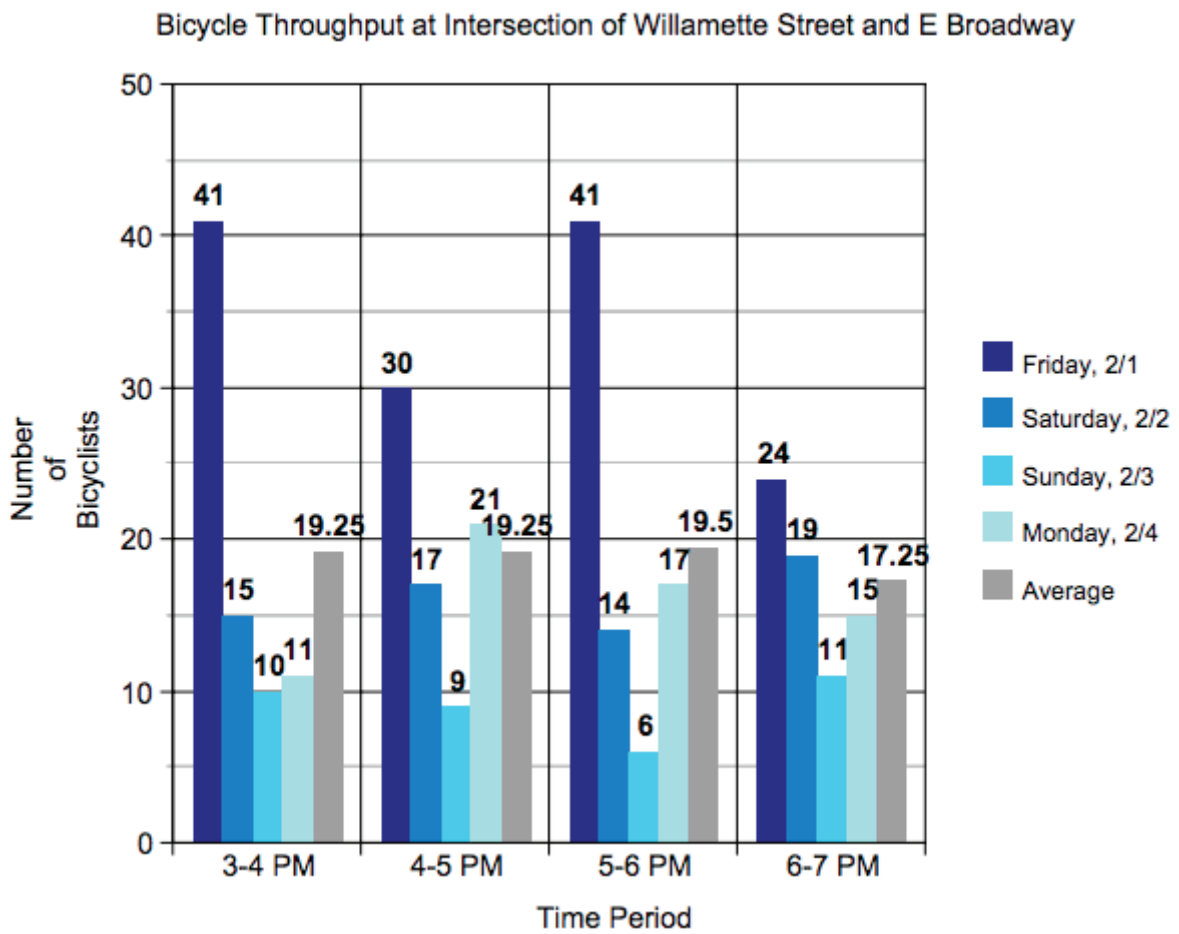
Appendix D

City of Gresham Bicycle Count Graphs 2011-2018



Appendix E

City of Eugene Bicycle Throughput at Willamette and Broadway by hourly period



SCI Directors and Staff

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